



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/732,705	12/11/2000	Shinji Koyano	Q62174	2917

7590 01/14/2005

SUGHRUE, MION, ZINN, MACPEAK & SEAS
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037-3202

EXAMINER

GRIER, LAURA A

ART UNIT	PAPER NUMBER
----------	--------------

2644

DATE MAILED: 01/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/732,705

Applicant(s)

KOYANO ET AL.

Examiner

Laura A Grier

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-8,10,11,13-15 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-8,10,11,13-15 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4-8, 10-11, 13-15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clements, U. S. Patent No. 3014096 in view of Steve VanderLeest.

Regarding claim 1, Clements discloses sound reproducing means (figures 1 and 2) comprising a speaker (11), a microphone (col. 8, lines 28-57) and an excursion gauge (col. 9, lines 20-63), respectively for detecting amplitude of the diaphragm of the speaker; and a feedback means applied back to an amplifier for providing a positive feed of the amplitude into the driving signal of the speaker; Clements discloses everything claimed as applied above (see claim 1). Clements' (figure 2) gauge indicates velocity detecting means and integrating means (col. 9, lines 20-63), which reads on a velocity detecting means and an integrating means for integrating the velocity to produce the amplitude signal. Even though, Clements discloses the integrating circuit comprising circuitry components such as resistors and capacitor (col. 13, lines 30-34) and is the performance of the integrator is directed to low frequencies (col. 12, lines 35-53), Clements fails to specifically disclose the integrator comprising a 1st order low pass filter.

Regarding the integrator comprising a 1st order low pass filter, Steve VanderLeest discloses an active 1st order filter (pages 2-3), which discloses an integrator as being a low pass filter.

Thus, it would have been obvious to one of the ordinary skill in the art the time the invention was made to modify the invention of Clements by implementing an integrator as or including a low pass filter for the purpose of optimally enhancing the low frequency performance of the loudspeaker, wherein it is taught by Clements that best performance of a high quality sound system is to acquire the reproduction sound having an exception low frequency in respect to the resonance frequency of the speaker unit.

Regarding claim 4, Clements discloses everything claimed as applied above (see claim 1). Clements' disclosure further teaches that operational characteristic based upon the voltage and current (9, lines 72-75 and col. 10, lines 1-19).

Regarding claim 5, Clements discloses sound reproducing means (figures 1 and 2) comprising a speaker (11) an excursion gauge (col. 9, lines 20-63), for detecting amplitude of the diaphragm of the speaker based upon the velocity in respect to the voltage and current applied to the speaker (9, lines 72-75 and col. 10, lines 1-19), which reads on detecting operational characteristics of a diaphragm of a speaker; a feedback means applied back to an amplifier for providing a positive feed of the amplitude into the driving signal of the speaker. Clements' (figure 2) gauge indicates velocity detecting means and integrating means (col. 9, lines 20-63), which reads on a velocity detecting means and an integrating means for integrating the velocity to produce the amplitude signal. Even though, Clements discloses the integrating circuit comprising circuitry components such as resistors and capacitor (col. 13, lines 30-34) and is the

performance of the integrator is directed to low frequencies (col. 12, lines 35-53), Clements fails to specifically disclose integrating in relation to a low pass filter.

Regarding the integrator comprising a 1st order low pass filter, Steve VanderLeest discloses an active 1st order filter (pages 2-3), which discloses an integrator as being a low pass filter.

Thus, it would have been obvious to one of the ordinary skill in the art the time the invention was made to modify the invention of Clements by implementing an integrator as or including a low pass filter for the purpose of optimally enhancing the low frequency performance of the loudspeaker, wherein it is taught by Clements that best performance of a high quality sound system is to acquire the reproduction sound having an exception low frequency in respect to the resonance frequency of the speaker unit.

Regarding claim 6, Clements discloses everything claimed as applied above (see claim 5). Clements' disclosure further teaches that operational characteristic based upon the voltage and current (9, lines 72-75 and col. 10, lines 1-19).

Regarding claim 7, Clements discloses everything claimed as applied above (see claim 5). Clements' disclosure further teaches that operational characteristic comprising velocity (col. 9, line42-46).

Regarding claim 8, Clements discloses sound reproducing means (figures 1 and 2) comprising a speaker (11) an excursion gauge (col. 9, lines 20-63), for detecting amplitude of the diaphragm of the speaker based upon the velocity in respect to the voltage and current applied to

Art Unit: 2644

the speaker (9, lines 72-75 and col. 10, lines 1-19), which reads on detecting operational characteristics of a diaphragm of a speaker; a feedback means applied back to an amplifier for providing a positive feed of the amplitude into the driving signal of the speaker. Clements' (figure 2) gauge indicates velocity detecting means and integrating means (col. 9, lines 20-63), which reads on a velocity detecting means and an integrating means for integrating the velocity to produce the amplitude signal. Even though, Clements discloses the integrating circuit comprising circuitry components such as resistors and capacitor (col. 13, lines 30-34) and is the performance of the integrator is directed to low frequencies (col. 12, lines 35-53), Clements fails to specifically disclose integrating in relation to a low pass filter.

Regarding the integrator comprising a 1st order low pass filter, Steve VanderLeest discloses an active 1st order filter (pages 2-3), which discloses an integrator as being a low pass filter.

Thus, it would have been obvious to one of the ordinary skill in the art the time the invention was made to modify the invention of Clements by implementing an integrator as or including a low pass filter for the purpose of optimally enhancing the low frequency performance of the loudspeaker, wherein it is taught by Clements that best performance of a high quality sound system is to acquire the reproduction sound having an exception low frequency in respect to the resonance frequency of the speaker unit.

Regarding claim 9, Clements discloses everything claimed as applied above (see claim 8). Clements' integrating means inherently provides a LPF as evident by the fact that the integration circuit or integrator may comprises resistors and capacitor (col. 13, lines 30-34), which are common components of a filter structure and the indicated performance of the

Art Unit: 2644

integrator is directed to low frequencies (col. 12, lines 35-53), and evidently provides a lower cutoff frequency than the lowest resonance frequency of the speaker as it is the desired purpose of the invention to acquire high-quality low frequency reproduction.

Regarding claim 10, Clements discloses everything claimed as applied above (see claim 8). Clements' disclosure further teaches that operational characteristic comprising velocity (col. 9, line 42-46).

Regarding claim 11, Clements discloses sound reproducing means (figures 1 and 2) comprising a speaker (11) an excursion gauge (col. 9, lines 20-63), for detecting amplitude of the diaphragm of the speaker based upon the velocity, which reads on detecting operational characteristics of a diaphragm of a speaker; integrating means and a feedback means applied back to an amplifier for providing a positive feed of the amplitude into the driving signal of the speaker. Even though, Clements discloses the integrating circuit comprising circuitry components such as resistors and capacitor (col. 13, lines 30-34) and is the performance of the integrator is directed to low frequencies (col. 12, lines 35-53), Clements fails to specifically disclose integrating in relation to a low pass filter.

Regarding the integrator comprising a 1st order low pass filter, Steve VanderLeest discloses an active 1st order filter (pages 2-3), which discloses an integrator as being a low pass filter.

Thus, it would have been obvious to one of the ordinary skill in the art the time the invention was made to modify the invention of Clements by implementing an integrator as or including a low pass filter for the purpose of optimally enhancing the low frequency performance

of the loudspeaker, wherein it is taught by Clements that best performance of a high quality sound system is to acquire the reproduction sound having an exception low frequency in respect to the resonance frequency of the speaker unit.

Regarding claim 13, Clements discloses everything claimed as applied above (see claim 11). Clements' disclosure further teaches that operational characteristic based upon the voltage and current (9, lines 72-75 and col. 10, lines 1-19).

Regarding claim 14, Clements discloses everything claimed as applied above (see claim 11). Clements' disclosure further teaches that operational characteristic comprising velocity (col. 9, line 42-46).

Regarding claim 15, Clements discloses sound reproducing means (figures 1 and 2) comprising a speaker (11) an excursion gauge (col. 9, lines 20-63), for detecting amplitude of the diaphragm of the speaker based upon the velocity in respect to the voltage and current applied to the speaker (9, lines 72-75 and col. 10, lines 1-19), which reads on detecting operational characteristics of a diaphragm of a speaker; integrating means and a feedback means applied back to an amplifier for providing a positive feed of the amplitude into the driving signal of the speaker. Even though, Clements discloses the integrating circuit comprising circuitry components such as resistors and capacitor (col. 13, lines 30-34) and is the performance of the integrator is directed to low frequencies (col. 12, lines 35-53), Clements fails to specifically disclose integrating in relation to a low pass filter.

Regarding the integrator comprising a 1st order low pass filter, Steve VanderLeest discloses an active 1st order filter (pages 2-3), which discloses an integrator as being a low pass filter.

Thus, it would have been obvious to one of the ordinary skill in the art the time the invention was made to modify the invention of Clements by implementing an integrator as or including a low pass filter for the purpose of optimally enhancing the low frequency performance of the loudspeaker, wherein it is taught by Clements that best performance of a high quality sound system is to acquire the reproduction sound having an exception low frequency in respect to the resonance frequency of the speaker unit.

Regarding claim 17, Clements discloses everything claimed as applied above (see claim 15). Clements' disclosure further teaches that operational characteristic comprising velocity (col. 9, line42-46).

Response to Arguments

3. Applicant's arguments with respect to claims, 1, 4-8, 10-11, 13-15 and 17 have been considered but are moot in view of the new ground(s) of rejection.

The applicant essentially argues the prior art of record, Clements, fails to support the integrator comprising a low pass filter (of the 1st order). Therefore, the 102(b) rejection of Clements has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made with Clements' teaching of enabling enhanced high quality audio by enhancing the low frequency of a signal in view of VanderLeest, which provides efficient support of an integrator being a low pass filter.

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Carver, U. S. Patent No. 5748753, disclose high power audio subwoofer.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura A Grier whose telephone number is (703) 306-4819. The examiner can normally be reached on Monday - Friday, 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Laura A. Grier
January 5, 2005